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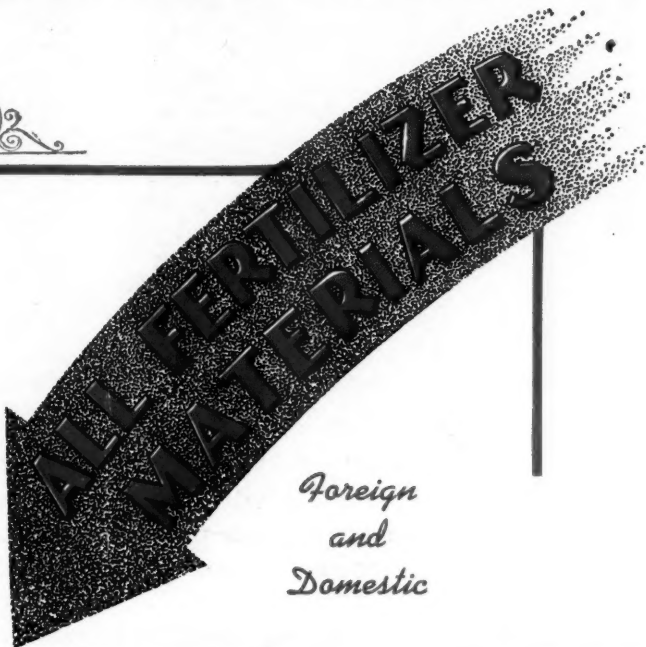
Vol. 100

MARCH, 1944

No. 46



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AMMONIUM NITRATE
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SULPHATE of AMMONIA
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ORGANIC AMMONIATES
•
SULPHUR
• •



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and
Domestic*

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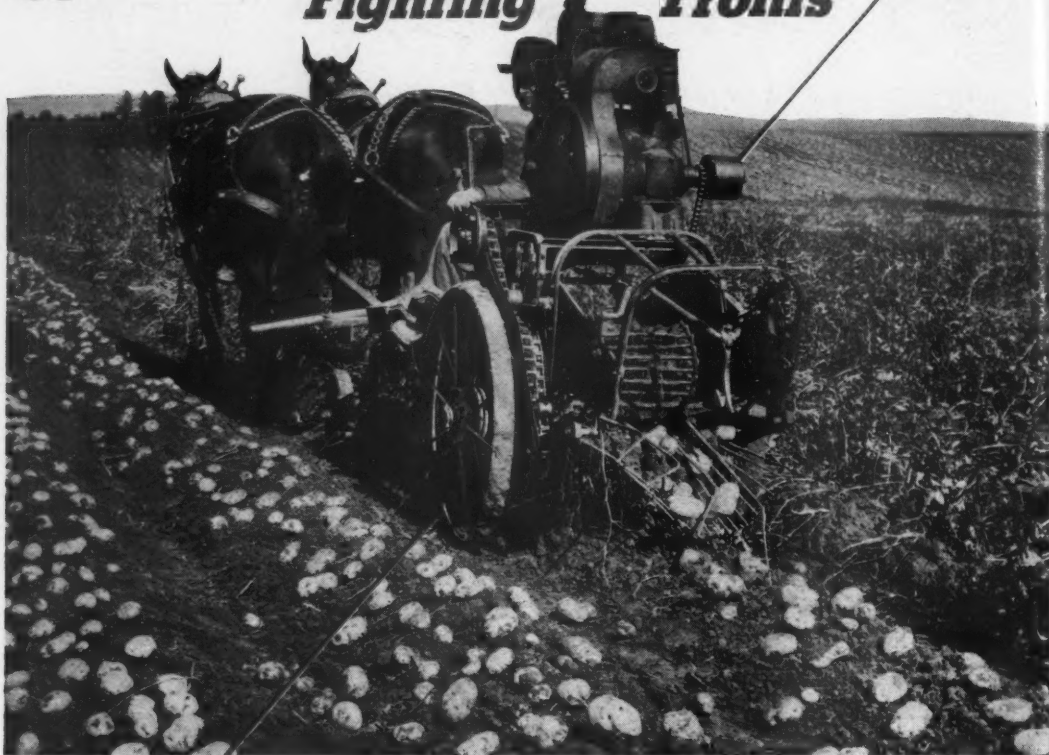
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AMERICAN FERTILIZER

"That man is a benefactor to his race who makes two blades of grass to grow where but one grew before."

Vol. 100

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No. 6

NITROGEN COMPOUNDS IN 1943

Prepared by BERTRAND L. JOHNSON, under the supervision of OLIVER BOWLES,
Chief, Nonmetal Economics Division, Economics and Statistics Service

TOTAL war still dominated the domestic nitrogen situation in 1943. Nitrogen is vitally essential to the war program, first, in the production of munitions and, second, in the production of food. According to the Bureau of Mines, Department of the Interior, for the past two years nitrogen has been in short supply with an ever-increasing demand; and to meet current food production programs the requirements of American farmers for fertilizer nitrogen are at an all-time high.

Before 1943 shortages were evident both for military purposes and for agriculture, but military demands came first. In 1943 a shift in emphasis occurred. Decreased ordnance requirements, because of changes in character of explosives manufactured, and an increase in ordnance supply of anhydrous ammonia made available for agricultural use increasingly large supplies of ammonia and ammonium nitrate from the munitions plants. The use of this excess supply of ammonium nitrate for fertilizer purposes was encouraged by the Government because of the nitrogen shortage and the possibility that it would offer an opportunity to conserve the shipping normally required for the importation of nitrate of soda from Chile. The substitution of ammonium nitrate for sodium nitrate in mixed fertilizers leaves the reduced imports of the Chilean material available for direct application to the soil only.

Inorganic Nitrogen Compounds Natural Nitrates

Domestic Nitrate Deposits.—Although deposits of soluble nitrate minerals are widely distributed in the United States they are too small and too low grade to serve as a basis for a domestic nitrate industry. There has been

no recent production from any of these deposits of natural nitrates.

Chilean nitrate.—Large quantities of natural sodium nitrate and smaller amounts of potassium-sodium nitrate are imported from Chile annually, at present under a wartime subsidy whereby the United States Government absorbs some of the increased costs and prices. These imported sodium nitrates are under allocation, and it is reported that in the year ended June 30, 1943, about 8 per cent of the imports was applied to war industries and 92 per cent to agriculture.

In the fertilizer year July 1, 1942, to June 30, 1943, about 812,000 tons of Chilean nitrate are said to have been used for side and top dressing for crops and a much smaller quantity in mixed fertilizers. In the fiscal year beginning July 1, 1943, imports of only about 500,000 tons of Chilean nitrate are forecast, which will be inadequate for agricultural requirements in full. Therefore, contrary to the practice in previous years, no nitrate of soda will be allowed in mixed fertilizers during the fertilizer year 1943-44. Its use is restricted to direct application as side and top dressing. Supplies of Chilean nitrate supplemented by synthetic nitrate of soda, equal to about 90 per cent of the tonnages used in the previous year, are believed available for this purpose.

Synthetic Nitrogen Compounds

General.—The general situation with regard to the synthetic nitrogen industry in the United States in 1942 was covered in Mineral Market Survey 1086 on Nitrogen Compounds in 1942. The following summary presents the major developments with respect to diverse

synthetic nitrogen compounds in the calendar year 1943.

Ammonia and its compounds.—The greater part of the ammonia produced in the United States is made synthetically by the combination of pure nitrogen and hydrogen. Smaller quantities are recovered as a by-product in the coking of coal. Its principal uses have been military and agricultural, with minor quantities utilized in industry. Surplus of ammonia above military needs became evident in 1943, and restrictions on the use of anhydrous and aqua ammonia in agriculture and industry were relaxed. Ammoniation of superphosphate again became possible.

The domestic capacity for the production of synthetic ammonia has been greatly increased over the pre-war status and is now apparently much greater than any probable post-war demand. Exact figures for the current productive capacity are not yet available. Various estimates have been made ranging from a general one of twice the maximum pre-war consumption of nitrogen to a recent more definite statement of 1,322,000 tons. (Nitrogen: Competition or Not. *Fortune*. Vol. 29, No. 2, Feb. 1944, pp. 129-130, 232, 234, 236, 238, 241-242, 244, 247).

Synthetic ammonia production from numerous private and Government-owned plants is said to have reached a new high record in 1943. Figures, however, are not available.

Sales of by-product coke ammonia liquor (NH_3 content), according to the Bureau of Mines, were 35,674 short tons in 1943 compared with 31,938 tons in 1942. Production likewise was higher, but not high enough to compensate for the sharply increased sales, and stocks declined. Considerable quantities of synthetic ammoniating solutions were produced in 1943, some of which were allocated to the fertilizer industry.

General Preference Order M-163, effective June 1, 1942, placed by-product ammonia under complete allocation control by the War Production Board. General Preference Order M-164, effective on the same date, provided for the allocation control of the synthetic ammonia by the same authority. Both orders remained in force throughout 1943.

Ammonium sulphate, one of the most important agricultural fertilizers and one of the principal sources of nitrogen in mixed fertilizers, is obtained solely as a manufactured product, the natural mineral, mascagnite, occurring only in very small deposits about volcanoes and in some guanos. Practically all ammonium sulphate that is produced is employed for fertilizer purposes; some is used for

the production of other ammonium salts and ammonia. Production of by-product coke ammonium sulphate, which constitutes almost the entire production in the United States, decreased, according to reports by the producers to the Bureau of Mines, from 766,804 short tons in 1942 to 762,645 tons in 1943, but sales increased from 751,914 tons to 774,834 tons with a resultant marked decrease in stocks on hand at the end of 1943. Small additional quantities of ammonium sulphate come from other sources, such as gas plants other than by-product coke plants, tar refineries, and synthetic chemical plants. The price of ammonium sulphate per 100 pounds remained at \$1.46 f. o. b. Atlantic ports throughout 1943.

War Production Board General Preference Order M-163 of May 30, 1942, effective June 1, 1942, which placed by-product ammonium sulphate under allocation, remained effective throughout 1943.

Ammonium nitrate was originally produced in larger quantities for munitions, but because of decreased ordnance requirements and a larger output, substantial supplies were freed by both private and Government-owned plants and made available for fertilizer purposes.

Ammonium nitrate is not a new fertilizer or fertilizer ingredient, but farmers are not generally familiar with it. As early as 1924 it was used in mixing complete fertilizers. Ammonium sulphate-nitrate (26 per cent nitrogen) was made by mixing solutions of ammonium nitrate and ammonium sulphate, evaporating and crystallizing. Consumption of ammonium nitrate in combination with other materials in various fertilizers during the years shortly before World War II ranged from a minimum of 1,000 tons in 1932 to 68,000 tons in 1937. Approximately 65,000 tons of ammonium nitrate were used in 1941, and it is expected that more than 200,000 tons will be used in fertilizer in 1944. The total supply of ammonium nitrate available for fertilizer used in the fertilizer year 1943-44 has been estimated at 345,900 tons. Ammonium nitrate contains about twice as much nitrogen as does nitrate of soda. After December 1, 1943, all commercial ammonium nitrate mixtures produced in the United States are to be guaranteed to contain 32.5 per cent nitrogen. The pure material contains about 35 per cent nitrogen, one-half of which is in the ammoniacal and one-half in the nitrate form.

Early in 1943 imports of a mixture of ammonium nitrate and limestone produced in

(Continued on page 22)

Industry Advisory Committee Discusses Plans for 1944-45 Season

THE WFA Fertilizer Industry Advisory Committee met on March 9th, P. H. Groggins, WFA, presiding. Also present: H. M. Albright, George Cushman, Ralph B. Douglass, George W. Gage, N. E. Harman, S. B. Haskell, M. H. Lockwood, M. H. McCord (for C. F. Hockley), John L. Morris (for Wm. B. Tilghman, Jr.), Nelson Myers (for J. A. Woods), Weller Noble, O. J. Noer, Walter S. Rupp, John E. Sanford, C. D. Shallenberger, Nelson T. White, and F. J. Woods, members of the Committee; Richard Bradfield, Charles J. Brand, R. W. Cummings, D. S. Murph, J. W. Turrentine, N. J. Volk, R. E. Yoder, by invitation; G. R. Carson, G. F. Crocker, T. W. Davies, W. E. Lafkin, L. G. Porter, W. F. Watkins, Fertilizers Division, WFA, USDA; D. W. Aitken, J. L. Boatman, A. C. Howard, A. L. Mehrling, B. T. Shaw, J. H. Stallings, other USDA; Paul L. Poirot, OPA; Dale C. Kieffer, Wm. Lehman, WPB.

Present Situation

Members of the Committee reported as to present conditions and the outlook for the rest of the 1943-44 season. In general, the movement of fertilizer from the factories is considerably ahead of the movement on the corresponding date last year. In some sections, such factors as bad weather, the changes in the draft plan affecting farmers, and labor shortage have interfered with the movement. In almost all areas there will be an increase in the demand, ranging from 5 per cent in some sections to 10 per cent in others. With the exception of the West Coast it is expected that the demand generally will be met.

Potash

WPB reported that more potash is expected to be available for fertilizer purposes next year than was available this year. Production probably will exceed 800,000 tons, of which 675,000 tons will go to fertilizer, the rest going to chemical industries and for export. The increase will be in high grade muriate. It is possible that potash from Spain may take the place of part of our estimated exports, thus

increasing the amount available for fertilizer use here. Some fertilizer manufacturers will not need the potash allocated to them for Period 3. On April 1st all potash not taken up will be reallocated to other manufacturers. Failure of a manufacturer to take his Period 3 allocation will not affect his base for future allocations.

Inorganic Nitrogen

The subcommittee reported that on the basis of (1) there being no substantial net changes in supplies of nitrate of soda, sulphate of ammonia, cyanamid, uramon, organic nitrogen, and ammonium phosphates available for 1944-45 as compared with 1943-44, but (2) with potential supplies of ammonium nitrate greatly increased, and (3) with possible increase in nitrogen solutions, the minimum supply of fertilizer nitrogen probably available in 1944-45, after providing an estimated 40,000 tons for export, will be approximately 705,000 tons, of which an estimated 30,000 tons is organic. On the same premises the supply is not likely to exceed 735,000 tons after providing for exports. The supplies of nitrogen potentially available are apparently adequate to meet, substantially, the estimate of commercial requirement, 1944-45, of 725,000 tons of nitrogen.

The subcommittee pointed out that there is expected an increase of about 10 per cent in 1944-45 requirements, as compared with 1943-44, for nitrogen in complete mixed fertilizers; that the supply of sulphate of ammonia cannot be increased; that shortage of labor, of bags, and of freight car space will make desirable, if not necessary, an increase in plant-food concentration in mixed fertilizers. In order, therefore, that the mixed fertilizer in 1944-45 may best utilize materials available, the subcommittee recommended: That a task group of industry technicians be appointed to suggest to the industry methods of making full use of the changing pattern of supply of inorganic nitrogen materials; this task group to report before the next meeting of the Advisory Committee. Before adjournment of the Committee meeting, Mr. Groggins announced the appointment of the following as a task group: M. H. Lockwood, chairman; C. A. Butt;

R. G. Kreiling; J. K. Plummer; H. B. Siems; W. H. Ross, USDA, advisor; F. S. Lodge, secretary.

In view of the fact that conditioned ammonium nitrate must shortly, in the period of heavy use, meet the test of actual storage and use under hot and humid weather conditions, and as the facts as to performance will be available at the time of the Committee's May meeting, the subcommittee felt that any examination of supplies for top and side dressing, at this time, would be inadvisable.

Organic Nitrogen

It was reported that WFA held a meeting, on February 24th, of representative organic nitrogen producers. As a result of consideration of the supply situation, this group unanimously recommended that the 70 per cent limitation set by FPO 12 on the acquisition of organic nitrogenous materials be raised to 80 per cent. An amendment to the order for this purpose is in process. It was pointed out that it is more difficult to estimate the supply of such materials than the supply of some other materials, because some sources of supply are unreported. It was stated that WFA will appoint a task group to make recommendations as to an order on organic nitrogenous materials for next year.

Sulphuric Acid

WPB reported that it is not now feasible to forecast the 1945 situation with respect to sulphuric acid, except by projecting the present situation into the future. In some sections, notably in the Southeast, more sulphuric acid is available than fertilizer manufacturers can use. The January production of superphosphate was almost exactly the same as the December production, although the distribution of sulphuric acid was about 20,000 tons greater. It is not expected that the sulphuric acid situation will be a bottleneck next year in the production of superphosphate. For lack of storage at the ordnance plants, acid must move from the plants promptly. It must be available at points where it can be used as it cannot be moved great distances. Plans contemplate construction of a superphosphate plant at Gopher, Minn., to utilize acid from the Gopher works.

Superphosphate

The subcommittee reported that there has been practically no change from the figures as to production and requirements of superphosphate which were submitted at the Committee's January meeting. The statement

presently submitted shows an excess of 857,013 tons, basis 18 per cent and including triple superphosphate, as of June 30, 1944. This figure is based on a continuation of supplies of ordnance sulphuric acid as at present and the ability of superphosphate manufacturers to move, through Government agencies, considerable quantities of the May and June production. The labor situation in Florida may affect production of triple superphosphate.

The subcommittee expressed the opinion that the production of superphosphate for the year beginning July 1, 1944, should be at least as large as this year's production, or larger. In view of the increased demand for superphosphate, the subcommittee suggested that the Committee adopt a resolution to the effect that producers of superphosphate and wet base be urged to speed up their production of these materials in order not only to take care of the increased demand for commercial fertilizer and direct application, but also to offer and supply any surplus possible of production to the Agricultural Adjustment Agency for distribution for conservation purposes, and that Mr. Groggins be requested to write the manufacturers of these materials to this effect, and also that this matter be brought to the attention of the superphosphate manufacturers at meetings scheduled to be held in the future. The Committee approved the report. WFA was requested to take up with the War Labor Board the seriousness of the labor situation in Florida. WFA accepted this request and also will write to WPB and superphosphate manufacturers as to speeding up production.

Mixed Fertilizers

The subcommittee reported that a forecast (based on the traditional relationship between farm income and expenditure for fertilizers) of the commercial demand for fertilizer in 1944 and 1945 by A. L. Mehring and B. T. Shaw, USDA, was presented, and the subcommittee accepted the estimate as the probable commercial demand. The totals, in tons, for 1944 are as follows:

	Continental U. S.	Territories	Total U. S.
Nitrogen.....	692,000	35,000	727,000
Phosphoric acid....	1,294,000	15,000	1,309,000
Potash.....	722,000	23,000	745,000

Consideration was also given to preliminary estimates of fertilizer requirements based on crop needs as determined by a special departmental subcommittee but in view of the incomplete nature of the report and the absence

of documentation the subcommittee felt that it was impractical for it to support or contradict the report.

WFA requested recommendations as to revision of FPO 5 for 1944-45, and the subcommittee approved the following recommendations: (1) There should be an official list of grades; it should be adopted early; and when adopted it should not be changed during the season. (2) The A and B crop classifications and provisions relating to production-increment crops and production-increment fertilizers should be dropped, but because of the known demand on the part of farmers for fertilizers to produce commercial crops in accordance with WFA food production goals, and in light of the doubtful returns and dangers incident to large scale use under "Grants in Aid" plans, the subcommittee recommended that all commercial crops be established in a preferred class and shall be eligible for the maximum rates of application recommended by the State experiment stations. (3) The provision relating to the sales of one grade of specialty fertilizer by each manufacturer should be retained but the restriction as to production of such fertilizers should be eliminated. (4) The provision relating to Victory garden fertilizer should be retained. (5) The requirement that the maximum rates of application be limited to the rates recommended by the State experiment stations should be retained, with the present War Food Administrator supplement, paragraph (4) page 3, FPO 5, October 27 revision. (6) Use of the application form should be continued in order to assure reasonable control of distribution for war needs. (7) It was felt that more encouragement should be given to use of the higher analysis grades by emphasizing them. The Committee approved these recommendations.

Ammonium Nitrate for Production-Increment Crops

WFA pointed out that the designation of forage crops and pasture as production-increment crops meant that on these crops production-increment fertilizers, including ammonium nitrate, could be used at any rate of application per acre not in excess of the maximum rate recommended by the State agricultural experiment station. In view of the recognized need for ammonium nitrate on forage crops and pastures and of the supply situation, WFA found it feasible to earmark about 9,000 tons for such use in certain States during March and about 8,000 tons for such use in April. State quotas were set up because of uncertainty as to the demand and as to

ability to supply the demand in full. No quotas were set up for the Southern States except for Virginia and Kentucky for March. Discussion developed the suggestion that, because of the fertilizer manufacturer's practical difficulties in segregating ammonium nitrate for different purposes, all priorities as to ammonium nitrate be eliminated.

Bags

The Committee voted to request release of burlap for fertilizer bags if the paper situation indicates the necessity. WFA reported that WPB is contemplating the issuance of an amended Order M-221 (textile bags), with no restrictions on the use of burlap bags for shipping fertilizer, and no burlap quota restrictions. In the meantime it was pointed out, fertilizer manufacturers may apply to WPB for specific authorization to buy burlap bags under certain conditions.

Labor

Attention was directed to a letter, dated March 2nd, from WFA Administrator Marvin Jones to WMC Chairman Paul V. McNutt. The letter emphasized the importance of superphosphate and mixed fertilizers in the achievement of crop production goals, pointed out the special need for common and semi-skilled labor during the next two or three months, and requested that Chairman McNutt, in view of the present emergency, instruct local USES offices to give special attention to the labor requirements of superphosphate and mixed fertilizer plants. The Committee voted to extend thanks to Administrator Jones for his interest.

WFA reported that its recent survey of immediate need for manpower in fertilizer plants indicated a need for about 4,400 additional laborers to get over the rush season. It is expected that the war-prisoner camp at Hampton Roads, Va., will be ready for operations by March 15th. Selective Service thinking now seems to be along the line of no deferment unless the draftee has some special skill directly related to the war effort.

Transportation

WFA reported that a few more than 600 applications for special rations of gasoline have been received, and that of these about 500 have been certified, about 50 have been rejected, and the others are under consideration. The average mileage is about 1,200 miles per applicant. WFA has been impressed with the sincerity of the applicants and their cooperative spirit as to transportation problems.

Superphosphate Production at Record Figures

Production of normal superphosphate (basis 19 per cent P_2O_5) during the first seven months of the 1943-44 production year (July to July) was approximately 3,880,000 tons, the War Production Board announced on March 20th. January production was 580,219 tons.

Assuming an average monthly production of 600,000 tons for the remaining five months of the production year, the total output in 1943-44 should approximate 6,900,000 tons—an all-time high, according to officials of WPB's Chemicals Bureau who reviewed the situation at a recent meeting of WPB's Superphosphate Producers Industry Advisory Committee.

Deliveries of sulphuric acid from ordnance plants for superphosphate manufacture have reached a new high, WPB said. In March, these deliveries amounted to approximately 30,000 tons (basis 60 degrees) in the Southeast and 10,000 tons to the Atlantic coast in the area from Norfolk north.

New superphosphate facilities with an annual production capacity of approximately 612,000 tons (basis 18 per cent P_2O_5) have been approved and construction has either been completed or will be completed during the second half of 1944, WPB reported. Approximately 175,000 tons of this new production will be in the form of triple superphosphate, officials said. The anticipated supply of sulphuric acid for superphosphate

production in 1944-45 is adequate for the production of 9,000,000 tons of normal superphosphate, WPB said.

February Tax Tag Sales

In contrast to sharp increases reported in recent months, a decline was registered in fertilizer tax tag sales in February as compared with the corresponding month of last year. Total sales for the month in the 17 reporting States amounted to 1,300,000 tons, against 1,451,000 tons a year ago and 1,255,000 tons two years ago.

This decline in sales reflects the earlier buying this year, rather than a falling off in anticipated demand for fertilizer. In the five months from October through February, in which period the sale of tags is largely for tonnage moving for spring crops, sales this year were substantially larger than in the last two years, as shown by the following tabulation.

October-February 1941-1942 . . .	3,068,000
October-February 1942-1943 . . .	3,388,000
October-February 1943-1944 . . .	4,092,000

The fertilizer industry and Government agencies have cooperated in a program to get farmers to buy their fertilizer early. That this program has been successful is indicated by the tag sale figures.

Increases over last year were reported by 8 of the 17 States, but the effect of these was more than offset by decreases in 9 States.

FERTILIZER TAX TAG SALES

STATE	FEBRUARY				JANUARY-FEBRUARY		
	1944 Tons	1943 Tons	1942 Tons	% '43	1944 Tons	1943 Tons	1942 Tons
Virginia	75,825	64,422	63,470	114	142,399	124,694	156,518
North Carolina	241,507	298,931	267,898	96	497,570	518,383	628,856
South Carolina	160,995	208,889	208,552	87	315,353	363,210	329,725
Georgia	210,540	248,370	238,543	100	408,558	408,213	317,792
Florida	83,820	75,196	68,560	111	196,842	177,470	160,717
Alabama	154,050	195,700	147,700	97	307,650	316,750	253,050
Mississippi	81,395	77,643	64,965	96	165,395	171,807	138,915
Tennessee	46,397	42,613	28,040	120	67,685	56,351	43,579
Arkansas	35,800	40,090	32,350	76	55,158	72,790	70,250
Louisiana	33,550	39,413	30,197	95	65,150	68,813	55,947
Texas	40,625	33,480	19,955	111	58,525	52,705	44,580
Oklahoma	4,109	5,350	2,900	87	8,259	9,450	3,550
Total South	1,168,613	1,330,097	1,173,130	98	2,288,544	2,340,636	2,203,479
Indiana	65,266	72,500	50,004	74	89,955	122,350	147,568
Illinois	16,850	15,429	6,825	132	44,950	34,180	22,190
Kentucky	34,988	6,005	22,158	452	64,376	14,235	38,781
Missouri	9,984	25,793	2,769	163	46,946	28,852	10,348
Kansas	4,491	1,253	290	704	9,171	1,303	305
Total Midwest	131,579	120,980	82,046	127	255,398	200,920	219,192
Grand Total	1,300,192	1,451,077	1,255,176	100	2,543,942	2,541,556	2,422,671

Dr. O. E. May to Head USDA Chemistry Bureau

Dr. Orville E. May has been appointed chief of the Bureau of Agricultural and Industrial Chemistry, by Secretary of Agriculture Wickard, to succeed Dr. W. W. Skinner. Dr. Skinner will retire from Government service March 31st and Dr. May's appointment will take effect the same day.

As coordinator of chemical and chemical engineering research programs in the Agricultural Research Administration since 1942, Dr. May has had a wide and intimate acquaintance with all phases of this work in the Department of Agriculture. His post as coordinator has also brought him into close contact with industry and with other Government agencies, notably the Office of Scientific Research and Development, the Office of Strategic Services, the War and Navy Departments, the War Production Board, and the Office of the Rubber Director, with all of which the Agricultural Research Administration has had cooperative arrangements.

In his new post, in addition to other duties, Dr. May will direct the work of the Department's four regional research laboratories, which deal with industrial and food uses of agricultural products and by-products. One of these, the Northern Regional Research Laboratory at Peoria, Ill., he organized in 1939 and directed until 1942. Prior to that (1936-39) he organized and directed the U. S. Regional Soybean Laboratory at Urbana, Ill.

Forty-two years old, Dr. May is one of the younger men in responsible posts in the administration of research. Born in New Albin, Iowa, in 1901, he attended Loras College there and then studied at the University of Minnesota and at George Washington University, where he received his A.B., M.S., and Ph.D. degrees and later served for a time as instructor in chemistry. He joined the staff of the Bureau of Agricultural and Industrial Chemistry (then the Bureau of Chemistry) in 1923. As a research worker he has dealt with all phases of the chemistry of products im-

portant to agriculture, including corn, wheat, soybeans, and agricultural residues and products derived from them.

Dr. May is a member of the American Chemical Society, the American Oil Chemists Society, the American Institute of Chemists, and several scientific fraternities.

Fertilizer Fiscal Operations in Wartime

American industry has been strengthening its financial position in preparation for uncertainties which might lie ahead. Industrial corporations have set aside out of wartime earnings substantial amounts in reserves against special war or postwar emergencies or contingencies. These reserves in 250 large corporations in 50 industries at the end of 1942 amounted to \$514,593,000 according to the National Industrial Conference Board.

This practice of following a conservative course in wartime fiscal operations has been followed in the fertilizer industry. Consolidated financial statistics for five large companies in the industry with total assets at the end of 1942 of more than \$125,000,000, are shown in the table below. As indicated therein, there was set aside out of earnings in 1941 and 1942 a total of \$1,315,000 for special reserves. The reserve charges to income in 1942 were equivalent to 16 per cent of net income before such charges.

In addition to the charges to income for the special reserves, the fertilizer companies have added to surplus a very substantial amount remaining after the payment of dividends. For the five companies combined the aggregate addition to surplus in 1939-1942 amounted to \$8,541,000, an amount well in excess of the \$6,136,000 paid out in dividends.

In the four years from 1939 through 1942 these companies set aside more than \$9,850,000 to serve as a cushion against any possible future drain upon their resources. As a result of these conservative practices the fertilizer industry will be in a better position to adjust its operations in the postwar period to changed conditions and to serve better the 2,500,000 American farmers who use commercial plant-food.

WARTIME FISCAL RESULTS IN THE FERTILIZER INDUSTRY

BASED ON REPORTS OF FIVE LARGE FERTILIZER COMPANIES TO SECURITIES EXCHANGE COMMISSION

	1939	1940	1941	1942
Total assets (end of year).....	\$107,392,000	\$110,118,000	\$111,330,000	\$125,021,000
Reserve charges to income.....			65,000	1,250,000
Net income after reserves.....	1,476,000	2,562,000	3,903,000	6,736,000
Dividends.....	869,000	1,181,000	1,702,000	2,384,000
Undistributed income.....	607,000	1,381,000	2,201,000	4,352,000

THE AMERICAN FERTILIZER

ESTABLISHED 1894
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A MAGAZINE INTERNATIONAL IN SCOPE AND CIRCULATION
DEVOTED EXCLUSIVELY TO THE COMMERCIAL FERTILIZER
INDUSTRY AND ITS ALLIED INDUSTRIES

PIONEER JOURNAL OF THE FERTILIZER INDUSTRY

WARE BROS. COMPANY
PUBLISHERS
1330 VINE STREET PHILADELPHIA, PA.
A. A. WARE, EDITOR

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The Farm of the Future to Be Factory

The farmer of the postwar period will be an industrialist as well as a producer of raw materials for industrial purposes, D. Howard Doane, of St. Louis, predicts in a recent issue of *Farm Journal*.

Doane, the nation's leading professional manager of farms, with 350,000 acres under his supervision, says: "The next and biggest step in agriculture is establishment of fixed and movable processing plants, handling agricultural products grown nearby, which will extract, compress, dehydrate, refrigerate, concentrate and fabricate these farm commodities.

"Most of this will be first-step processing only. Much of the product—often 50 per cent to 80 per cent of it—need never leave the community. The farmer will be his own best customer. For example, in crushing soybeans, 80 per cent of the product is oil meal needed locally for feed. Why ship it somewhere, get it tangled up in a maze of distribution and selling, then ship it back?

"The rest of the product will usually go to city industry for further processing into refined and precision goods. For instance, the soybean oil, which may end up in cooking fat or soap."

Products which offer the best possibilities for first-processing in rural industries are those which are bulky, full of water, or perishable; or those where a large number of handlers have crowded between producer and consumer; according to Carroll P. Streeter, associate editor of *Farm Journal*.

Some of the processing will be done on individual farms, some by farmers' cooperatives, some by private companies, including rural branches of city industries.

Doane calls the new program "vertical diversification," explaining this to mean that, instead of raising many kinds of crops, known as "horizontal diversification," the farmer concentrates on his most profitable crop, and makes it as nearly ready for the consumer as he can.

"With horizontal diversification," he says, "a farmer stays a raw producer, and in any line the raw producer, unless tightly organized, is the poorest-paid man in the picture, whether he be farmer, fisherman or woodchopper.

"That's because there is such a multitude of producers, all competing one with another, and all forced to go on whether the price is high or low.

"We face three surpluses sooner or later after the war ends," Doane claims. "First will be a surplus of young people looking for jobs. More of them want to live in rural America than have ever been able to find opportunity there. They will be the most mechanically-trained young folks we ever had—well able to run the machinery in rural industries.

"Second will be a surplus of certain agricultural products. With less men, less machinery, less fertilizer, less everything, farmers last year produced at an all-time high. What will they be able to do when they get enough of all of these again, on top of further advances in farming methods?

"We won't be able to export much, in the face of increasing agricultural competition all over the world, nor will we go on indefinitely with a free feeding program for distressed nations. Rather we will help them build their own agriculture. It will be cheaper for us and better for them. All of this means that from here on, farmers will have to depend on something more than mere raw production.

"Third will be a surplus of factory space, which could well be turned to making the new machines and tools farmers will need for producing and processing farm crops."

Vertical diversification is already being applied successfully at the 7,000-acre Bobshaw plantation in Mississippi, one of the many extensive agricultural operations under Doane's management.

Increase in Superphosphate Production Expected

The War Production Board announced today that superphosphate requirements for 1944-45 have not been definitely established. The 1943-44 program provided for production of 7,000,000 tons of the fertilizer. It is estimated that by the first of the 1944-45 season, operations will be at the rate of 8,000,000 tons of superphosphate a year, estimated minimum requirements for the year are 9,000,000 tons, however.

A report on the progress of WPB-authorized acidulating plants which are under construction has been given to members of WPB's Inorganic Acids Industry Advisory Committee. The plant at Searsport, Maine, is expected to be in operation by June, it was said, while the acid portion of the project at Pocatello, Idaho, has been suspended until certain facts in respect to another plant are clarified. If sulphuric acid production capac-

ity is increased at Garfield, Utah, which is a waste gas operation, the sulphuric acid unit at Pocatello may be eliminated, it was explained.

Members of the committee also were told that the triple superphosphate project originally planned for Beaumont, Texas, has been shifted to Houston. Of the 170,000 tons of superphosphate to be produced annually by this unit, only about 100,000 tons will be standard. The remainder will be triple-phosphate. This plant is designed to operate on spent alkylation acid.

Another acid plant which is expected to be in operation soon is that of the American Agricultural Chemical Company at St. Bernard, Ohio, WPB officials said. It is expected to begin production about April 1st.

Members of the committee were advised that superphosphate production in December was in excess of 600,000 tons. Distribution of ordnance acid to southeastern manufacturers in January was 25,000 tons equivalent to 19,000 tons on a 100 per cent basis, it was said, while February distribution in the same area will be 26,500 tons. The program for the north is still somewhat indefinite, WPB officials said.

It was reported that San Francisco superphosphate plants are now operating at only 50 per cent capacity because of lack of manpower.

Bucket Shipments by Air Indicated in New Hayward Bucket Guide

In a new 16-page vest-pocket guide on its complete line of digging and rehandling buckets, The Hayward Company, 50 Church Street, New York, announces that it is preparing to make quick shipments of Hayward Buckets by air just as soon as cargo planes are available for carrying civilian freight. This illustrated factual publication is designed for the busy operating man who wants a quick picture of the improved types of buckets now available, the uses for which each is recommended, the capacities and sizes obtainable. Information and data are given on Re-handling and Digging Clam Shell Buckets, Electric Motor Buckets, Standard and Multipower Orange Peel Buckets, Sewer Catch Basin Buckets, Automatic Take-up Reels and Grapples for a wide variety of materials such as tiered wood, manure, rocks, tree trunks and pulp wood. Copies are available by sending a request to the manufacturer.

Phosphate Rock Industry Committee Formed

Some thirty large and small phosphate rock mining companies will be represented by a newly-formed industry advisory committee the membership of which has been made public by the Office of Price Administration.

Three OPA maximum price regulations govern the phosphate rock industry, including the mining of all kinds of the product among which Florida pebble and Tennessee brown phosphate rock are the principal types.

Members of the industry advisory committee are:

L. H. Carter, the American Agricultural Chemical Company, New York City; Frank S. Washburn, American Cyanamid Company, New York City; John R. Sheffield, Coronet Phosphate Company, New York City; Franklin Farley, International Minerals and Chemical Corporation, Chicago; Charles E. Heinrichs, The Phosphate Mining Company, New York; Chester A. Fulton, Southern Phosphate Corporation, New York City; Charles T. Prinderville, Swift and Company, Chicago; and Herbert H. Meyers, Virginia-Carolina Chemical Corporation, Richmond, Va.

More Organic Nitrogen Allowed for Fertilizer

The War Food Administration has announced an action slightly increasing the amount of organic nitrogen which fertilizer manufacturers may use.

The action (Amendment No. 1 to Food Production Order No. 12, Revision 2) permits the use of 80 per cent of the organic nitrogen used by fertilizer manufacturers in the 1941-42 fiscal year, rather than the 70 per cent previously allowed.

It is understood, officials said, that the improved supply of organic nitrogen results from higher production of inedible materials than was originally anticipated.

The increase in permitted use of organic nitrogen, however, will definitely not validate use of any edible seed meals, other than the nominal quantities which fertilizer manufacturers some time ago received authorization to use.

Issuance of the amendment does not mean, officials said, that additional supplies of organic materials are immediately available. They indicated that the total quantity which will be produced in the fiscal year ending June 30th may equal about 80 per cent of the quantity used in the 1941-42 year. It is hoped that moderate additional quantities will be produced in time to permit the formulation of additional truck crop and tobacco fertilizers, which farmers insist must carry some part of their nitrogen in organic form.

Obituary

PERLEY J. BUCHANAN

With deep regret we report the death of Perley J. Buchanan at his home in Montclair, N. J., on February 23rd.

Mr. Buchanan was born in Walden, Vermont, sixty years ago. He was graduated from Tufts College in 1907, where he remained to teach Chemistry for the next two years. Entering the employ of The American Agricultural Chemical Company on July 1, 1909, he was, at the time of his death, Director of Process Development and Chemical Control. He was a member of the American Chemical Society.

Mr. Buchanan leaves a widow, the former Irena Crawford, a son, Edwin, and a brother, Don Buchanan, of Addison, Vermont.

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FERTILIZER MATERIALS MARKET

NEW YORK

Heavy Demand for All Materials for Use in Current Season's Mixed Goods. Small Amount of Manure Salts May Be Available for Re-allocation. Price of Ammonia Liquor Reduced. Superphosphate Production Continues at Peak

Exclusive Correspondence to "The American Fertilizer"

NEW YORK, March 22, 1944.

Potash

Shipments are steady but most buyers are pressing for quick deliveries as they need the potash for this year's mixed fertilizers, proving that there are practically no stock piles at plants. There have been some reports that certain fertilizer manufacturers would not take delivery of allocations for deliveries during the third period. However, we believe that practically all allocations of high-test material will be accepted; the only material that will be released by some of the manufacturers being manure salts, and these releases will probably be re-allocated to such buyers that can use additional low test material.

Sulphate of Ammonia

Material is moving against allocations with no stock piles accumulating. One of the largest manufacturers reduced the price on ammonia liquor which was followed by reduction in price of B Liquor by one of the largest sellers of this material. It is quite likely that all producers will meet the new price. Certain fertilizer manufacturers now feel that probably the prices on all solutions will shortly be reduced, in line with reductions above mentioned.

Superphosphate

Production continues but with the tremendous demand, no stock piles are accumulating and in certain sections of the country material is scarce. Because of large demands for superphosphate, the phosphate rock deliveries are heavy, but in spite of the labor difficulties the rock miners have managed to keep up with the demand up to now.

BALTIMORE

Size of Fertilizer Output Dependent on Manpower Situation. Anhydrous Ammonia Relieves Nitrogen Shortage. No New Superphosphate Supplies Available.

Exclusive Correspondence to "The American Fertilizer"

BALTIMORE, March 21, 1944.

The labor situation with fertilizer manufacturers here is still critical, and all of them are more or less handicapped through insufficient help to get out orders for complete fertilizer. It is now anticipated that shipments this spring will approximate about 90 per cent of last year's shipments, and if weather conditions are favorable and the manpower situation improves, the tonnage might equal last year's shipments.

Ammoniales.—There is practically no tankage or blood being offered on the market for fertilizer purposes in view of the heavy demand for feed, which carries a ceiling price.

Castor Pomace.—There is still a dearth of offerings and manufacturers are not taking on further business.

Sulphate of Ammonia.—There is still a shortage of this product but this may be somewhat alleviated through the fact that some of the manufacturers recently came on the market and are again offering anhydrous ammonia which some of the manufacturers can use advantageously in their mixtures to displace sulphate.

Nitrate of Soda.—There is no change in the situation. Stocks seem to be ample to take care of current requirements and deliveries are being made under Government allocations.

Superphosphate.—There are no offerings on the market and the various manufacturers are endeavoring to take care of their regular customers. The labor situation continues critical with result that when the season is over there will be practically no stocks on hand. Ceiling



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price of 64 cents per unit of A. P. A. is still effective, but it is impossible to make any purchases on this or any other basis.

Potash.—From additional allocations made by domestic manufacturers, it now appears as though there will be ample supplies to take care of domestic requirements for the coming spring season.

Bone Meal.—The market is still bare of offerings of both raw and steamed bone meal, and the demand on the other hand is practically nil.

Bags.—Due to difficulty of securing both paper and cotton, some of the fertilizer manufacturers are hopeful that the Governmental restrictions will soon be changed to offer relief and again authorize burlap bags to be used for fertilizer purposes, as the farmers prefer burlap bags as they can be used over and over again for farm products. In the meantime there is no change in the market, and the Government ceiling price established some time ago still prevails.

CHARLESTON

Plants Working to Capacity. Practically No Offerings of Organics or Superphosphate. Production of Cottonseed Meal Decreases.

Exclusive Correspondence to "The American Fertilizer"

CHARLESTON, March 20, 1944.

All plants are working to the limit of their ability to ship, considering the shortage of labor.

Organics.—Although the Nitrogen Unit has raised the allocation on organics to 80 per cent instead of 70 per cent, there are practically no organics being offered.

Superphosphate.—This material continues exceedingly scarce with minimum quantities being offered in the Southeast.

Cottonseed Meal.—No change in the market prices: Atlanta, 8 per cent, \$49.50; Memphis, \$48.50. The production of cottonseed meal

from August through February was 119,000 tons short of the amount produced during the same months last season. Shipments August through February were 302,999 tons short this year of the amount shipped during the same period last season with only 69,000 tons on hand at the mills the first of March.

PHILADELPHIA

Mixers May Now Use Larger Amount of Organics If Obtainable. More Sulphate of Ammonia Wanted. Material Production Well Maintained.

Exclusive Correspondence to "The American Fertilizer"

PHILADELPHIA, March 21, 1944.

Of considerable interest to the trade was the announcement yesterday by WFA of a revision to FPO 12, permitting mixers to purchase up to 80 per cent of organic nitrogenous materials. However, to take advantage of this permission to acquire additional tonnage, the mixers will first have to find the materials, which is not such an easy job these days. Otherwise, manpower shortage and the transportation difficulties continue to dominate the news.

Ammoniates.—Blood, tankage, and other organic nitrogenous materials continued tight, what little being available going apparently to the feeding trade. The inorganic ammoniates, of course, continue under allocation, and move in a routine manner.

Sulphate of Ammonia.—Reports are that additional supplies of this material would be welcomed by many mixers, but WPB has permitted increased quantities to only one or two sections of the country.

Nitrate of Soda.—Supply seems to be good and sufficient to meet all allocations.

Superphosphate.—With the season fast approaching, demand has increased for supplies of this item. Production, however, is holding at a good rate.

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for

DOMESTIC

Sulphate of Ammonia

Ammonia Liquor

::

Anhydrous Ammonia

HYDROCARBON PRODUCTS CO., INC.

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Bone Meal.—What little becomes available finds its way to feeders for the most part.

Potash.—Production holding up well, and some mixers have not taken in all that they could have under the allocation system. It is thought that this tonnage might be redistributed to those still in need of additional quantities.

Castor Pomace.—Supply still light, with demand good.

TENNESSEE PHOSPHATE

Shipments of Phosphate Rock Still at Maximum. New TVA Phosphate Plant for Feed Planned. Committee to Study Filling of Phosphate Cuts.

Exclusive Correspondence to "The American Fertilizer"

COLUMBIA, TENN., March 20, 1944.

Shipments are still moving at the greatest possible speed into all consuming channels and especially to the farmers of the cornbelt for direct application to the soil, who are trying desperately to get their phosphate spread before the heavy rush of spring work.

The latest news is the recent announcement of the TVA that work is to begin shortly to install another large plant in the Godwin neighborhood for calcining phosphate rock, or rather fusing it, to reduce the fluorine content so as to supply stockfood mineral manufacturers and mixed feed producers with a substitute for the bone meal now so inadequate in supply and so high in price. The TVA project for such a plant to produce 40,000 tons per year, was two million dollars, including purchase of property and mining and preparation plant for the raw material phosphate rock. It is presumed that with the above features already completed in connection with the sintering plant, about a million dollars will be required for the new construction.

It is reported that the committee appointed by the Governor to investigate and report to

next legislature recommendations for proper legislation to effect the "filling of the phosphate cuts" is to have an early meeting to study and discuss the maps of mined-over areas and presumably prospective additional mining still to be done. These maps have been under preparation by the State Department of Geology.

Naturally no legislation will be passed which will force any of the present operating companies to fill up any of their mines now being operated or which they expect to operate again. However, the much larger total area of land mined during the various spasms of the past forty-five years, abandoned for richer areas as they were discovered, and held for all these years waiting for the chance to again interest someone in developing them again, will be the sufferers from such legislation as will be passed.

CHICAGO

Fertilizer Organic Market Quiet. Sellers Not Offering for Future Delivery. Feed Market Demand Intensive.

Exclusive Correspondence to "The American Fertilizer"

CHICAGO, March 20, 1944.

Quietness still prevails in the organic market, without any indication of improvement in offerings. Buyers express willingness to take on material for spring and early summer deliveries at full ceiling prices, but sellers turn deaf ears to such propositions.

Receipts of live hogs are now near normal. Demand for feeds continues almost desperate. Restricted supply of grain feeds adds pressure to the mounting demand.

No change in ceiling prices.

High grade ground fertilizer tankage, \$3.85 to \$4.00 (\$4.68 to \$4.86 per unit N) and 10 cents; standard grades crushed feeding tankage, \$5.53 per unit ammonia (\$6.72 per unit



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N); blood, \$5.38 (\$6.54 per unit N); dry rendered tankage, \$1.21 per unit of protein, Chicago basis.

Phosphate Rock Industry of the Western States in 1943

The marketed production of Western States phosphate rock experienced a setback in 1943 of 14 per cent from the recent total of 265,665 long tons reached in 1942, dropping to 228,680 tons, with a P_2O_5 content of 72,730 long tons, as reported by producers to the Bureau of Mines, United States Department of the Interior. The total value was slightly more than a million dollars. The production in 1943 came from Idaho and Montana; Utah was inactive. The average P_2O_5 content of the Western States phosphate rock sold or used in 1943 is reported as 31.80 per cent.

Idaho rock sold or used in 1943 (108,916 long tons, with 34,709 tons P_2O_5 content) was about five per cent less than the record production of 1942 (114,079 tons). The same two companies were active in this State in 1943 as in 1942. By far the larger of these, the Anaconda Copper Mining Co., operated its No. 3 mine at Conda, Caribou County. Most of the Conda shipments in 1943 were to Anaconda, Montana, for conversion to superphosphate. Much smaller quantities were used for the production of phosphate chemicals, for direct application to the soil, for animal feed, and for fertilizer filler. Some was exported. The other producer, the Teton

Phosphate Co., Boise, Idaho, shipped phosphate rock from its holdings in Bear Lake County near Montpelier. Most of this material was sold for direct application to the soil. A small quantity was shipped for use in animal feeds.

Montana was the largest phosphate rock producer of the Western States group in 1943 as in 1942, although its lead in sales (10,848 long tons) was not nearly as great as in 1942. Its sales in 1943 (119,764 tons, with a P_2O_5 content of 38,021 tons) were 20 per cent less than the record made in 1942 (150,402 tons). Montana in 1943 had but one producing company, the Montana Phosphate Products Co., of Trail, British Columbia. This company operated the Anderson mine near Garrison, as well as several Federal leases in Powell County. It leased the property of the Mineral Hill Mining Co., near Avon, Powell County, on July 7, 1943, and operated it after that date. Most of the product of these various operations was exported to the Consolidated Mining and Smelting Company of Canada, at Trail. A considerable amount, however, was sold in the United States. The Mineral Hill Mining Co. did not operate its property in 1943 prior to leasing it. L. H. Skeels, who shipped a small quantity of phosphate rock from a property near Maxville, Granite County, in 1942, did not operate in 1943. The International Minerals and Chemical Corporation, which in 1942 acquired the Federal lease of the Northwestern Improvement Co., St. Paul, Minn. (Great Falls Serial

WESTERN STATES PHOSPHATE ROCK SOLD OR USED BY PRODUCERS, 1939-43

Year	Long tons	Idaho		Long tons	Montana	
		Value at mines	Average		Value at mines	Average
		Total			Total	
1939.....	95,451	\$431,938	\$4.53	44,384	\$112,142	\$2.53
1940.....	99,088	441,598	4.46	64,239	184,844	2.88
1941.....	97,274	444,154	4.57	105,108	318,588	3.03
1942.....	114,079	511,249	4.48	150,402	572,464	3.81
1943.....	108,916	561,630	5.16	119,764	488,665	4.08

Year	Long tons	Utah		Long tons	Total	
		Value at mines	Average		Value at mines	Average
		Total			Total	
1939.....				139,835	\$544,080	\$3.89
1940.....				163,327	626,442	3.84
1941.....	1,340	\$8,535	\$6.37	203,722	771,277	3.79
1942.....	1,184	7,410	6.26	265,665	1,091,123	4.11
1943.....				228,680	1,050,295	4.59

STEDMAN

FERTILIZER PLANT EQUIPMENT

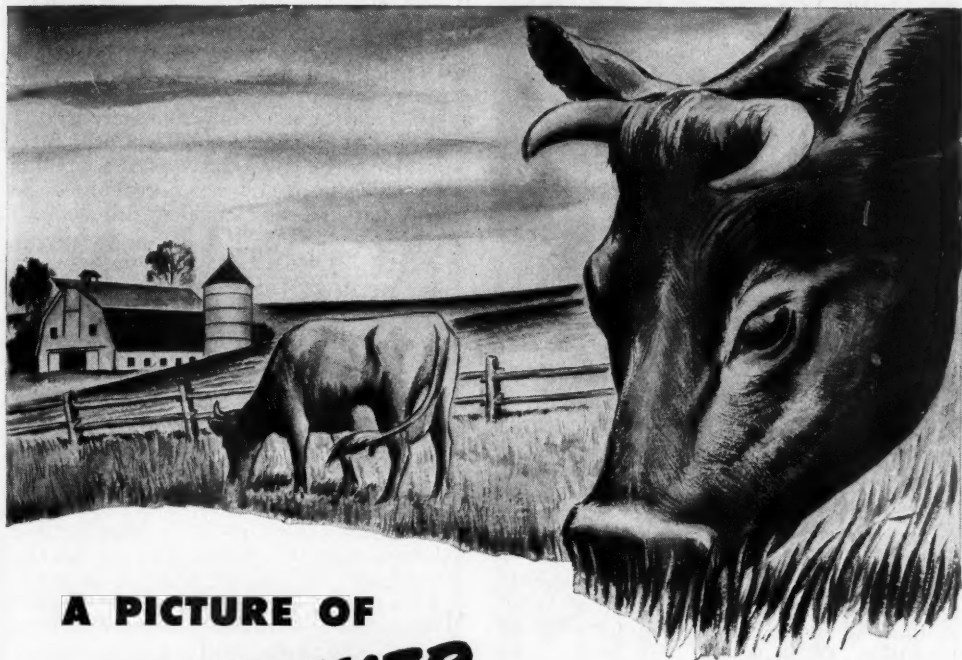
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No. 077838) conducted some exploration on the property in 1943 but did no mining on a commercial basis.

No phosphate rock production was reported from Utah in 1943. The Garfield Chemical and Mfg. Corporation, Salt Lake City, Utah, which mined and shipped in 1942 from Federal-leased land near Spanish Fork, Utah County, for use in pig-iron blast furnaces, did not report any operations on this leased ground in 1943.

The average value per ton of the Western States phosphate rock sold or used, as reported by producers to the Bureau of Mines, increased sharply from \$4.11 in 1942 to \$4.59 in 1943. The increase in Idaho was 68 cents, and in Montana, 27 cents per ton.

"Silver Herring" Means Less Fertilizer*

The war may be very much helped by the lowly menhaden. Until a year or so ago menhaden fish was used only for fish oil, chicken meal and fertilizer. The Massachusetts Indians called the fish Munnoquohteau, which means "he enriches the soil."

The menhaden has always stopped gourmets cold because, despite its sweet and delicious meat, it has even more bones than the shad to which it is kin. Previous efforts to can it failed because of the bone problem. Last year, new experiments were begun and it was discovered that by cooking the fish, canning them, then recocking them for a long period under pressure, the bones could be dissolved. After trying various types of pack, the experimenters concluded tomato sauce was best. Presto: Enter the silver herring!

The new product was presented through Lend-Lease to the British Food Ministry and samples were flown to Britain for a trial.

Back came an order for 5,000,000 pounds. The first cannery was set up at Fernandina. Others are now on the Gulf of Mexico and Chesapeake Bay. There will probably be a

*Reprinted from "The Tiller," published by Wm. B. Tilghman Co., Salisbury, Md.

dozen when the war ends, and the pack may reach 1,000,000 cases. The menhaden has a mild flavor, somewhat resembling salmon. After the war it may sell for as little as ten or fifteen cents per pound can.

We hope the epicures will be considerate for the fertilizer manufacturers and refrain from consuming the entire catch of this small oily fish, which until now has been only used to recover its oil and making fish scrap for fertilizer mixtures.

NITROGEN COMPOUNDS IN 1943

(Continued from page 6)

Ontario, Canada, were released by the War Production Board for direct application to the soil. Later in the spring ammonium nitrate from certain domestic war plants became available for fertilizer use, when capacity to produce this material began to exceed the amount needed for military explosives, and shipments were made from the Tennessee Valley Authority's plant at Muscle Shoals, Alabama, and a privately-owned plant in California. At the end of 1943, ammonium nitrate for fertilizer use was being produced by a number of Government plants in the United States and Canada and by a private plant in California. The Canadian material was handled through private brokers, and the TVA ammonium nitrate by that organization. Effective November 1, 1943, the distribution of ammonium nitrate from the Army's ordnance plants was placed in the hands of the Tennessee Valley Authority for the ensuing three months.

Ammonium nitrate must be used currently as produced, since it cannot be stored in quantity at the points of production. It is important, therefore, that agriculture absorb it promptly as produced, otherwise production would be curtailed.

The quoted price early in 1943 on the Canadian ammonium nitrate mixture was \$56.65 per short ton f. o. b. Port Robinson, Ontario, but in May 1943 it was reduced to \$47.65. The TVA price of United States ammonium nitrate November 1, 1943, to January 31, 1944, was set at \$49 a ton f. o. b. point of production. The ammonium nitrate fertilizers are among the lowest cost sources of

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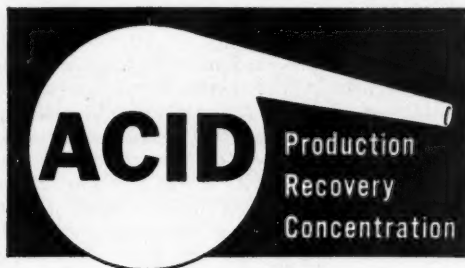
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Information and references available on request.

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See Page 4



MENTION "THE AMERICAN FERTILIZER" WHEN WRITING TO ADVERTISERS.

fertilizer nitrogen that can be obtained at present.

Sodium nitrate.—Little information is available regarding the current production or utilization of domestically produced synthetic sodium nitrate. According to the Department of Agriculture domestic production and imports to be allocated for direct application are expected to total 805,000 short tons in the year ended June 30, 1944, compared with 812,000 tons in the preceding year. According to report about 300,000 tons of this available supply is domestic synthetic sodium nitrate.

General Preference Order M-62, effective January 15, 1942, controls the supply and distribution of the synthetic sodium nitrate as well as the imported natural nitrate from Chile.

Natural Organic Materials

An increased demand for organic nitrogen bearing fertilizers, such as the various oilseed meals, castor pomace, garbage and animal tankages, dried blood, fish scraps, sewage sludge, and guanos, arose late in 1942 because of restrictions in the use of chemical nitrogen. Competitive bidding for a short supply of natural organic nitrogen between feed makers and fertilizer interests led to shortages and unequal distribution. To secure a more equitable distribution the War Food Administration issued, on May 7, 1943, Food Production Order No. 12, effective May 1, 1943, banning purchase of these materials by fertilizer manufacturers without prior approval of the Director of Food Production. On June 7, 1943, a revised F. P. O. No. 12, effective June 1, 1943, to July 1, 1944, was issued. This order limited the amount that could be so used to 70 per cent of the quantity used in 1941-42. About 25,000 tons of organic nitrogen were expected to be available during the period covered by the order, compared with 35,000 tons used in mixed fertilizer in the 1941-42 period. Later in the year a revision of this order provided for the distribution of a small quantity of edible cottonseed meal for use in fertilizers.

Cyanamide and Urea

Calcium cyanamide is not produced in the United States; however, it has been made, since about 1910, at the plant of the American Cyanamid Co. of New York, at Niagara Falls, Canada. In 1941, a considerable quantity of the cyanamide was imported into the United States for consumption under allocation principally in the South Central States of Mississippi, Louisiana, and Arkansas.

Urea, a synthetic organic nitrogenous com-

pound containing 46.65 per cent of nitrogen when pure, now used in considerable quantities in the United States as a fertilizer material, has been produced commercially in the United States only within the last ten years. It has, however, a number of uses other than as a fertilizer. The consumption of urea in fertilizer mixtures in the United States increased from 75 short tons in 1925 to over 34,000 tons in 1940.

A Guide to 1944 Farm Conservation Practices

The War Food Administration has announced details of a streamlined conservation practices program for 1944—a guide which America's six million farm families can use in bringing their land up to its maximum production capacity.

The new program is divided into the following principal sections: Fertilizers and other materials; cover crops; harvesting of legume and grass seeds; erosion control and water conservation measures; and range and pasture practices.

Each State will adopt its own set of practices from the general outline. The practices vary widely from State to State, depending on topography, soil, climate, the conservation needs of each State, and other factors. And the program is designed to encourage farmers to carry out conservation practices to a larger extent than they would otherwise.

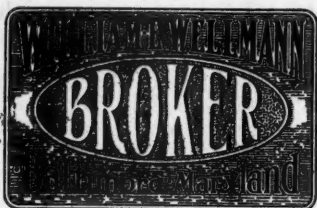
N. E. Dodd, chief of the Agricultural Adjustment Agency, which administers the conservation practices program, said that before each practice in the general outline was approved, it was subjected to two questions: (1) Will it increase food production in 1944 and 1945? and, (2) Can it be administered with a minimum of "red tape"?



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In explaining the first question, Mr. Dodd said: "Back in pre-war days, we carried on the conservation program in preparation for whatever eventualities might arise; but since Pearl Harbor, those eventualities have become real, and the conservation program has been drafted for war service like other phases of the national farm program. Immediately after Pearl Harbor, the conservation program was streamlined, and it will be streamlined more than ever this next year. Had it not been for the conservation practices carried out in previous years, the record production of 1942 and 1943 would not have been reached."

Mr. Dodd said that farmers will be asked again this year to do their own checking and bookkeeping on the practices they have carried out. The less complicated the forms, the less time the farmer will have to spend at bookkeeping. In many instances the incentive for carrying out practices will be in the form of AAA payments made direct to the farmer while in other cases the incentive will be supplied by furnishing materials to the farmer. In either case the AAA bears a large part of the cost of the practices carried out by the farmer, particularly in the case of lime, phosphate, seeds and other materials furnished to farmers.

Among the most important practices on the list, in view of the immediate need for increased food production, are those dealing with the application of lime and phosphate. These two chemicals, both of which are produced in large quantities in many parts of the Nation, give the soil greater "fire-power." They boost the per-acre production of practically all crops, their cost is low in relation to the results achieved, and the results are immediate.

From 1936 through 1942, the total amount of limestone used by farmers cooperating in the program was 64,343,000 tons. This rose from 3,718,000 tons in '36 to 19,250,000 tons in 1942. (1943 figures are not yet available.)

The total amount of phosphate (converted to a 20 per cent basis) applied by cooperating farmers from 1936 through 1942 was 4,321,000 tons. This increased from 202,000 tons in 1936 to 1,154,000 in 1942.

The cover-crop practices have been revised

so they will make the greatest contribution to immediate production. Primary motive behind cover-crop practices is to put a winter cover on land that would otherwise be subject to erosion. They also add organic material to the soil when turned under in preparation for another crop.

In setting up the range practices, AAA officials said that if the high production of beef is to be continued, farmers must practice sound grazing management. The range program contains several supplementary practices for development of livestock water and for range improvement, but payment will not be made for such practices unless farmers manage their grasslands with the greatest efficiency.

Among the practices deleted from last year's program are most of those dealing with the establishment, and improvement of farm woodlands. These practices, officials explained, are of a long-term nature, and therefore have been temporarily eliminated in favor of practices which get more immediate results.

In commenting on the long-time purposes of the conservation program, Mr. Dodd said: "If our present acreage of cultivated land is managed well, it will be sufficient to see us through this war, and we will not have to resort to plowing up grasslands as we did in the first World War. The dust storms and erosion that followed that first plow-up became a national catastrophe which spread across a great part of the Nation and drove thousands of families into poverty. If the conservation program is followed properly, we can avoid such suffering at home and at the same time produce more than enough food for the fighting men and the civilian workers."

The demands upon American agriculture in 1944 will be even greater than the record production in 1943. The overall production for 1944 calls for the planting of a record total of about 380 million acres in crops and for maintaining the production of meat, dairy products, and eggs at high levels this year. The proposed total acreage is slightly above the previous peak planting of 377 million acres in 1932 and compares with 364 million acres planted for 1943 harvest.

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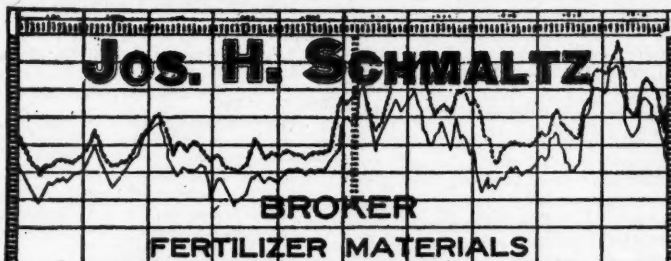
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Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

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Chemical Construction Corp., New York City.

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Chemical Construction Corp., New York City.
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BAGS—Cotton

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BURNERS—Sulphur

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BURNERS—Oil

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Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

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Stedman's Foundry and Mach. Works, Aurora, Ind.

GARBAGE TANKAGE

Wellmann, William E., Baltimore, Md.

GEARS—Machine Moulded and Cut

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

GEARS—Silent

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

GELATINE AND GLUE

American Agricultural Chemical Co., New York City.

GUANO

Baker & Bro., H. J., New York City.

HOISTS—Electric, Floor and Cage Operated, Portable

Hayward Company, The, New York City.

HOPPERS

Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

IMPORTERS, EXPORTERS

Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Wellmann, William E., Baltimore, Md.

IRON SULPHATE

Tennessee Corporation, Atlanta, Ga.

INSECTICIDES

American Agricultural Chemical Co., New York City.

LACING—Belt

Sackett & Sons Co., The A. J., Baltimore, Md.

LIMESTONE

American Agricultural Chemical Co., New York City.
American Limestone Co., Knoxville, Tenn.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

LOADERS—Car and Wagon, for Fertilizers

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Acid Making

Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.
Duriron Co., Inc., The, Dayton, Ohio.
Fairlie, Andrew M., Atlanta, Ga.
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Coal and Ash Handling

Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Elevating and Conveying

Atlanta Utility Works, East Point, Ga.
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Grinding and Pulverizing

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

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MACHINERY—Pumping

Atlanta Utility Works, East Point, Ga.
Duriron Co., Inc., The, Dayton, Ohio.

MACHINERY—Tankage and Fish Scrap

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Sackett & Sons Co., The A. J., Baltimore, Md.
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MAGNETS

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Stedman's Foundry and Mach. Works, Aurora, Ind.

MANGANESE SULPHATE

McIver & Son, Alex. M., Charleston, S. C.
Tennessee Corporation, Atlanta, Ga.

MIXERS

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

NITRATE OF SODA

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
Chilean Nitrate Sales Corp., New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

NITRATE OVENS AND APPARATUS

Chemical Construction Corp., New York City.

NITROGEN SOLUTIONS

Barrett Division, The, Allied Chemical & Dye Corp., New York City.

NITROGENOUS ORGANIC MATERIAL

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Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., Wilmington, Del.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Smith-Rowland Co., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

NOZZLES—Spray

Monarch Mfg. Works, Philadelphia, Pa.

PACKING—For Acid Towers

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

PANS AND POTS

Stedman's Foundry and Mach. Works, Aurora, Ind.

PHOSPHATE MINING PLANTS

Chemical Construction Corp., New York City.

PHOSPHATE ROCK

American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
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Bradley & Baker, New York City.
Coronet Phosphate Co., New York City.
Huber & Company, New York City.
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McIver & Son, Alex. M., Charleston, S. C.
Phosphate Mining Co., The, New York City.
Ruhm, H. D., Mount Pleasant, Tenn.
Schmaltz, Jos. H., Chicago, Ill.
Southern Phosphate Corp., Baltimore, Md.
Virginia-Carolina Chemical Corp. (Mining Dept.), Richmond, Va.
Wellmann, William E., Baltimore, Md.

PIPE—Acid Resisting

Duriron Co., Inc., The, Dayton, Ohio.

PIPES—Chemical Stoneware

Chemical Construction Corp., New York City.

PIPES—Wooden

Stedman's Foundry and Mach. Works, Aurora, Ind.

PLANT CONSTRUCTION—Fertilizer and Acid

Chemical Construction Corp., New York City.
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Sackett & Sons Co., The A. J., Baltimore, Md.

POTASH SALTS—Dealers and Brokers

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

POTASH SALTS—Manufacturers

American Potash and Chem. Corp., New York City.
Potash Co. of America, New York City.
International Minerals & Chemical Corp., Chicago, Ill.
United States Potash Co., New York City.

PULLEYS AND HANGERS

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

PUMPS—Acid-Resisting

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

PYRITES—Brokers

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., New York City.
Wellmann, William E., Baltimore, Md.

QUARTZ

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

RINGS—Sulphuric Acid Tower

Chemical Construction Corp., New York City.

ROUGH AMMONIATES

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McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
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SCREENS

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SEPARATORS—Air

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SEPARATORS—Including Vibrating

Sackett & Sons Co., The A. J., Baltimore, Md.

SEPARATORS—Magnetic

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Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

SHOVELS—Power

Link-Belt Company, Philadelphia, Chicago.
Link-Belt Speeder Corporation, Chicago, Ill., and Cedar
Rapids, Iowa.
Sackett & Sons Co., The A. J., Baltimore, Md.

SPRAYS—Acid Chambers

Monarch Mfg. Works, Inc., Philadelphia, Pa.

SPROCKET WHEELS (See Chains and Sprockets)

STACKS

Sackett & Sons Co., The A. J., Baltimore, Md.

SULPHATE OF AMMONIA

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New
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SULPHUR

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Baker & Bro., H. J., New York City.
Freeport Sulphur Co., New York City.
Texas Gulf Sulphur Co., New York City.

SULPHURIC ACID

American Agricultural Chemical Co., New York City
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International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.

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Ashcraft-Wilkinson Co., Atlanta, Ga.
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Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmalts, Jos. H., Chicago, Ill.
U. S. Phosphoric Products Division, Tennessee Corp.,
Tampa, Fla.
Wellmann, William E., Baltimore, Md.

SUPERPHOSPHATE—Concentrated

Armour Fertilizer Works, Atlanta, Ga.
International Minerals & Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp.,
Tampa, Fla.

SYPHONS—For Acid

Monarch Mfg. Works, Inc., Philadelphia, Pa.

TALLOW AND GREASE

American Agricultural Chemical Co., New York City.

TANKAGE

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmalts, Jos. H., Chicago, Ill.
Smith-Rowland, Norfolk, Va.
Wellmann, William E., Baltimore, Md.

TANKAGE—Garbage

Huber & Company, New York City.

TANKS

Sackett & Sons Co., The A. J., Baltimore, Md.

TILE—Acid-Proof

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

TOWERS—Acid and Absorption

Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

UNLOADERS—Car and Boat

Hayward Company, The, New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

UREA

DuPont de Nemours & Co., E. I., Wilmington, Del.

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VALVES—Acid-Resisting

Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
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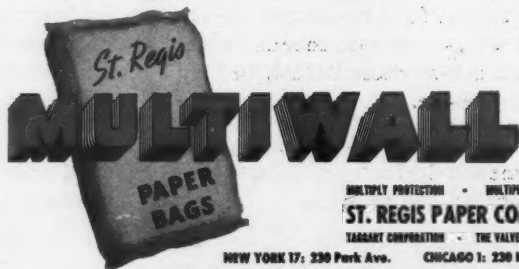


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